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CLAIMS

1. A multipanel sliding door comprising at least two panels which are supported for travel in substantially parallel planes along runners, characterised in that a rack and wheelwork arrangement is provided for the movement of the door panels.

- 2. The multipanel sliding door of claim 1, characterised in that it is comprised of:
 - a door header F extending parallel to the door runners,

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a set of n adjacent panels $P = \{P_0, P_1, ..., P_{n-1}\}$, whereof a panel P_0 is stationary and the remaining n-1 panels P_1 , $P_2, ..., P_{n-1}$ are supported for travel in planes substantially parallel thereto, the n panels $P_0, P_1, ..., P_{n-1}$ of set P having equal width L,

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a first set of n-2 racks CF = {CF₀, CF₁,..., CF_{n-3}} which are fixedly supported by door header F, the length of racks CF₀, CF₁,..., CF_{n-3} of set CF being equal to L, 2L,..., (n-2)L, respectively,

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- a second set of n-2 racks CP = {CP₂, CP₃,..., CP_{n-1}}
 which are attached to or formed unitarily with panels P₂,
 P₃,..., P_{n-1}, respectively, of set P, the length of racks CP₂,
 CP₃,..., CP_{n-1} of set CP being equal to L,
- a set of n-2 wheelworks $R = \{R_1, R_2, ..., R_{n-2}\}$ which are rotatably mounted on n-2 panels $P_1, P_2, ..., P_{n-2}$,

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respectively, of set P and are designed to mesh together with first CF and second CP set of racks,

set R including:

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- a wheelwork R₁ formed of a single toothed wheel which is meshed together with rack CF₀ of set CF and with rack CP₂ of set CP, and
- n-3 wheelworks R_2 , R_3 ,..., R_{n-2} each formed of two coaxial and co-rotating toothed wheels, whereof a first larger diameter toothed wheel is meshed together with rack CF_1 , CF_2 ,..., CF_{n-3} , respectively, of set CF and a second smaller diameter toothed wheel is meshed together with rack CP_3 , CP_4 ,..., CP_{n-1} of set CP, wherein the ratio of the diameter D_k of the larger toothed wheel to the diameter d_k of the smaller toothed wheel of k-th wheelwork R_k is equal to k = 2, 3, ..., n-2.
- 3. The multipanel sliding door of claim 1 characterised in that it is comprised of:
- a set of n adjacent panels P = {P₀, P₁,...,P_{n-1}}, whereof a panel P₀ is stationary and the remaining n-1 panels P₁, P₂,...,P_{n-1} are supported for travel in planes substantially parallel thereto, the n panels P₀, P₁,...,P_{n-1} of set P having equal width L, and n-2 panels P₀, P₁,...,P_{n-3} of set P having an extension arm B₀, B₁,...,B_{n-3}, respectively, at

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their top extending in the direction of travel of the panels,

- a first set of n-2 racks $CS = \{CS_0, CS_1,..., CS_{n-3}\}$ which are attached to or formed unitarily with extension arms $B_0, B_1,..., B_{n-3}$, of n-2 panels $P_0, P_1,..., P_{n-3}$, respectively, of set P,
- a second set of n-2 racks CD = {CD₂, CD₃,..., CD_{n-1}}
 which are attached to or formed unitarily with panels P₂,
 P₃,..., P_{n-1}, respectively, of set P,
- a set of n-2 wheelworks R = {R₁, R₂,..., R_{n-2}} which are rotatably mounted on n-2 panels P₁, P₂,..., P_{n-2}, respectively, of set P and are designed to mesh together with first CS and second CD set of racks.
- 4. The multipanel sliding door of claim 1, characterised in that it is comprised of:
 - a set of n adjacent panels P = {P₀, P₁,...,P_{n-1}}, which are supported for travel in substantially parallel planes and have equal width L,
- a first set of n-2 racks CS = {CS₀, CS₁,..., CS_{n-3}} which are attached to or formed unitarily with n-2 panels P₀, P₁,..., P_{n-3}, respectively, of set P,
 - a second set of n-2 racks CD = {CD₂, CD₃,..., CD_{n-1}}
 which are attached to or formed unitarily with n-2 panels
 P₂, P₃,..., P_{n-1}, respectively, of set P,

a set of *n*-2 pairs of wheelworks R = {(RS₁, RD₁), (RS₂, RD₂),..., (RS_{n-2}, RD_{n-2})} which are rotatably mounted on *n*-2 panels P₁, P₂,..., P_{n-1}, respectively, each pair of wheelworks (RS₁, RD₁), (RS₂, RD₂),..., (RS_{n-2}, RD_{n-2}) including a first wheelwork RS₁, RS₂,..., RS_{n-2} designed to mesh together with rack CD₂, CD₃,..., CD_{n-1}, respectively, of second set of racks CD and a second wheelwork RD₁, RD₂,..., RD_{n-2} designed to mesh with rack CS₀, CS₁,..., CS_{n-3}, respectively, of first set of racks CS, the first and second wheelwork of each pair of wheelworks (RS₁, RD₁), (RS₂, RD₂),..., (RS_{n-2}, RD_{n-2}) of set R being interlinked with one another by a transmission T₁, T₂,..., T_{n-2}, respectively, in order to rotate at the same rotational speed.

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